

### REMARKS

Claims 17-18 and 20-25 have been canceled. Claim 19 has been amended to specify the lengths (L1, L2), diameters (D1, D2), and volumes (V1, V2) specified in Figure 2 of the application, and the mathematical range of ratios of the lengths, diameters, and volumes specified in the Abstract and elsewhere in the application. Claim 26 has been added which depends from claim 19 and which requires that the machining steps yield each of the three ratios set forth in independent claim 19. The application now includes claims 19 and 26.

The cancellation of various claims makes moot the objection to the drawings.

The Abstract has been amended to be reduced in length and to satisfy the formal requirements set forth in the office action.

Page 8, lines 4-18, of the application describes the tip end of the coil 6 (see Figure 2) being integrally united with metal rod 3 through the formation of a melted tip end 4. The paragraph bridging pages 8 and 9 of the application indicate the relationships of L1, L2, D1, D2, V1, and V2 now set forth in claims 19 and 26. Figures 3-5 illustrate that electrodes which were machined to have one or more of the conditions  $0.15 \leq D2/D1 \leq 0.3$ ,  $0.2 \leq L2/L1 \leq 0.4$ , or  $0.2 \leq V2/V1 \leq 0.6$ , an electrode assembly for a high pressure discharge lamp which is highly reliable with respect to illuminance reduction can be created. These ratios are set forth on page 9 of the application in the second paragraph. With reference to Figures 3-5, it can be seen that outside of these ratios, the illumination fluctuation increases.

Claim 19 has been amended to highlight the end result of the machining process step.

Claims 19 and 25 were rejected as being anticipated by U.S. Patent 6,545,430 to Ono. Claims 17, 18 and 20-24 were rejected as being obvious over a combination of Ono in view of U.S. Patent 5,186,671 to Nagasawa. These rejections are traversed.

The principal reference is Ono, and the Examiner has referred to Figures 3-5, 8 and 10. However, the Examiner will note that Ono does not teach machining the tip end. Rather, with reference to column 15, lines 4-12, it can be seen that the protruding part 24 is formed by lighting up the lamp 100 for a predetermined period. This causes the protruding part "24" to "grow" to a predetermined height and become stable. As specifically acknowledged by Ono, this time varies to some extent according to various conditions. Thus, it is clear that Ono shows no machining of a rod end of any kind. Rather, the Ono procedure allows the protruding part 24 to be formed by "growth" from the tip end.

In sharp contrast, the present invention combines a coil and a rod and leaves a protruding end of the rod which is then precisely machined. The results produce a very precise relationship of L1 to L2, D1 to D2, and V1 to V2 which is set forth in claim 19. Outside of these precise relationships, there are fluctuations in illuminance. Not only does Ono not discuss these relationships or fluctuations, Ono does not describe any methodology where a tip end could be acted upon to achieve these precise relationships.

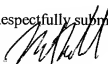
The Nagasawa reference has been relied upon for its teaching of laser processing at the end of an electrode. However, with reference to the face page of Nagasawa, it can be seen that a bulbuous tip 17a on the end of the electrode 17 is formed. Nagasawa does not show a tip end which satisfies the features specified in the claims. Also, Nagasawa does not show a separate coil and rod assembly being combined as contemplated in the present invention. Since neither Ono nor Nagasawa show or discuss a machining process which yields the specified relationships of L1 to L2, D1 to D2, and V1 to V2 which is set forth in claim 19, then the two references when combined would not yield or make obvious the specified relationships.

The Examiner is requested to reconsider the application in view of the amendments and arguments above, and to allow claims 19 and 26 at an early date in view of the amendments.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,



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